**Before the**
# FEDERAL COMMUNICATIONS COMMISSION
**Washington, D.C. 20554**

| | | |
|---|---|---|
| In the Matter of | ) | |
| | ) | |
| Improving Public Safety Communications in the 800 MHz Band | ) | |
| | ) | |
| | ) | WT Docket No. 02-55 |
| Consolidating the 900 MHz Industrial/Land Transportation and Business Pool Channels | ) | |
| | ) | |
| | ) | |

To: The Commission

**"Consensus Plan" COMMENTS OF**

**Statewide Wireless Network**

**New York State Office for Technology**

**State Capitol, ESP**

**P.O. Box 2062**

**Albany, New York 12220-0062**

February 10, 2003

# EXECUTIVE SUMMARY

These reply comments from the Statewide Wireless Network, under the New York State Office for Technology, present the recommendations and concerns of the State with regards to WT Docket No. 02-55, specifically the "Consensus Plan[1]" as proposed by a consortium of affected parties. This Notice of Proposed Rulemaking (NPRM) has been an effort by the Commission to address the need to improve and enhance public safety communications in th 800 MHz band, mitigate interference, and free additional spectrum for Public Safety. We applaud the Commission for addressing these issues, and for recognizing that public safety has immediate and critical spectrum needs. We further recognize the tremendous effort that has gone into producing this "Consensus Plan", a plan that addresses nearly all of the concerns that were raised in our previous filings.

The State has previously provided detailed comment on many issues raised in this proceeding, and now offers further comment on this "Consensus Plan" proposal. In particular:

- There are unresolved issues that hinder the ability to implement this plan in the border areas without forcing existing licensees into the proposed "Guard Band";

[1] WT Docket 02-55 Ex Parte' Filing: "Supplemental Comments Of The Consensus Parties: Aeronautical Radio, Inc. (“ARINC”); The American Mobile Telecommunications Association (“AMTA”); The American Petroleum Institute (“API”); The Association of Public-Safety Communications Officials-International, Inc. (“APCO”); The Forest Industries Telecommunications (“FIT”); The Industrial Telecommunications Association, Inc. (“ITA”); International Association of Chiefs of Police (“IACP”); The International Association of Fire Chiefs, Inc. (“IAFC”) and International Municipal Signal Association (“IMSA”); The Major Cities Chiefs Association (“MCC”); The Major County Sheriffs’ Association (“MCSA”); The National Sheriffs’ Association (“NSA”); National Stone, Sand and Gravel Association (“NSSGA”); Nextel Communications, Inc. (“Nextel”); The Personal Communications Industry Association (“PCIA”); The Taxicab, Limousine and Paratransit Association (“TLPA”)", December 24, 2002

- There must be clearly defined International Mutual Aid Channels set aside at each step of the 800 MHz re-banding, with uniform and continuous unfettered access to these channels across both the US and its neighbors;
- States which contain multiple NPSPAC Regions must have the option of requiring that all Regions within their State be relocated simultaneously, and according to the schedule of their highest priority region;
- The interference mitigation procedures presented within the "Consensus Plan" are incomplete, and too ambiguous; and
- Public Safety must be allowed to design fiscally responsible[2] and environmentally friendly[3] noise-limited systems. This plan has many implications that tend to move all 800 MHz systems toward interference-limited designs.

The State also notes that the "Consensus Plan" has done a commendable job in:

- Generating an effective and structured framework to resolve interference complaints, with clear roles, responsibilities, and lines of communications; and
- Developing the essence of a plan that can not only resolve most all of the interference issues plaguing the current 800 MHz band, but can also clear additional spectrum for Public Safety and B-I/LT services.

The State stresses that under no circumstances should the FCC take action that would delay the implementation of New York State's Statewide Wireless Network, as it will provide a critical component within the State and National homeland defense efforts.

[2] i.e. utilizing sensitive high spec receivers to minimize siting requirements.

[3] Increasing signal levels to overcome interference will require increased transmitting tower site density – not considered environmentally friendly

Furthermore, it should again be noted that the costs of any mandated public safety spectrum transitions must not present a further burden on the taxpayer.

**Before the**
# FEDERAL COMMUNICATIONS COMMISSION
**Washington, D.C. 20554**

| | | |
|---|---|---|
| In the Matter of | ) | |
| | ) | |
| Improving Public Safety Communications in the 800 MHz Band | ) | |
| | ) | |
| | ) | WT Docket No. 02-55 |
| Consolidating the 900 MHz Industrial/Land Transportation and Business Pool Channels | ) | |
| | ) | |
| | ) | |

To: The Commission

**"Consensus Plan" COMMENTS OF**

**Statewide Wireless Network**

**New York State Office for Technology**

**State Capitol, ESP**

**P.O. Box 2062**

**Albany, New York 12220-0062**

February 10, 2003

# *Contents*

# I. INTRODUCTION

1. These reply comments from the Statewide Wireless Network, under the New York State Office for Technology, present the recommendations and concerns of the State with regards to WT Docket No. 02-55, specifically the "Consensus Plan[4]" as proposed by a consortium of affected parties. This Notice of Proposed Rulemaking (NPRM) has been an effort by the Commission to address the need to improve and enhance public safety communications in the 800 MHz band, mitigate interference, and free additional spectrum for Public Safety. We applaud the Commission for addressing these issues, and for recognizing that Public Safety has immediate and critical spectrum needs. We further recognize the tremendous effort that has gone into producing this "Consensus Plan", a plan that addresses nearly all of the concerns that were raised in our previous filings.

2. The New York State Office for Technology, on behalf of the State of New York, is in the process of procuring a new Statewide Wireless Network (SWN) for State, Federal and Local Public Safety and Public Service entities that operate within New York State. SWN is an integrated, land mobile radio communications network that will provide a digital, trunked architecture offering both voice and data capabilities. The network will

[4] WT Docket 02-55 Ex Parte' Filing: "Supplemental Comments Of The Consensus Parties: Aeronautical Radio, Inc. (“ARINC”); The American Mobile Telecommunications Association (“AMTA”); The American Petroleum Institute (“API”); The Association of Public-Safety Communications Officials-International, Inc. (“APCO”); The Forest Industries Telecommunications (“FIT”); The Industrial Telecommunications Association, Inc. (“ITA”); International Association of Chiefs of Police (“IACP”); The International Association of Fire Chiefs, Inc. (“IAFC”) and International Municipal Signal Association (“IMSA”); The Major Cities Chiefs Association (“MCC”); The Major County Sheriffs’ Association (“MCSA”); The National Sheriffs’ Association (“NSA”); National Stone, Sand and Gravel Association (“NSSGA”); Nextel Communications, Inc. (“Nextel”); The Personal Communications Industry Association (“PCIA”); The Taxicab, Limousine and Paratransit Association (“TLPA”)", December 24, 2002

be used in day-to-day operations, as well as in response to disaster and emergency situations to more effectively and efficiently coordinate the deployment of all levels of government resources to such incidents. It will also enhance international coordination along the US/Canada border, and will play a critical role in supporting the homeland defense efforts within the State of New York.

3. The State has previously provided detailed comment on many issues raised in this proceeding, and now offers further comment on this "Consensus Plan" proposal. In particular:

    - There are unresolved issues that hinder the ability to implement this plan in the border areas without forcing existing licensees into the proposed "Guard Band";
    - There must be clearly defined International Mutual Aid Channels set aside at each step of the 800 MHz re-banding, with uniform and continuous unfettered access to these channels across both the US and its neighbors;
    - States that contain multiple NPSPAC Regions must have the option of requiring that all Regions within their State be relocated simultaneously, and according to the schedule of their highest priority region;
    - The interference mitigation procedures presented within the "Consensus Plan" require additional refinement; and
    - Public Safety must be allowed to design fiscally responsible[5] and environmentally friendly[6] noise-limited systems. This plan has many implications that tend to move all 800 MHz systems toward interference-limited designs.

[5] i.e. utilizing sensitive high spec receivers to minimize siting requirements.

4. The State also notes that the "Consensus Plan" has done a commendable job in:

    - Generating an effective and structured framework to resolve interference complaints, with clear roles, responsibilities, and lines of communications; and
    - Developing the essence of a plan that can not only resolve most all of the interference issues plaguing the current 800 MHz band, but also can clear additional spectrum for Public Safety and B-I/LT services.

5. The State stresses that under no circumstances should the FCC take action that would delay the implementation of New York State's Statewide Wireless Network, as it will provide a critical component within the State and National homeland defense efforts. Furthermore, it should again be noted that the costs of any mandated public safety spectrum transitions must not present a further burden on the taxpayer.

## II. BORDER REGION IMPLEMENTATION CONCERNS

6. In both its initial and reply comments under this Docket, the State of New York has expressed concern regarding Canadian and Mexican border region issues[7,8]. These border areas have a completely different band configuration from non-border areas, and current US 800 MHz allocations within these regions are limited, particularly in Canadian Region 2. Because of this, (a) homogeneous de-interlacing strategies cannot be

---

[6] Increasing signal levels to overcome interference will require increased transmitting tower site density – not considered environmentally friendly

[7] WT Docket 02-55, Comments of Statewide Wireless Network, New York State Office for Technology, §3.2.2-3, 3.2.5, 4.1, 4.4-5, 8.2, and Appendices A-G, I-J, May 2002

[8] WT Docket 02-55, Reply Comments of New York State Office for Technology, §III-B-15, August 6, 2002

applied Nationwide, and (b) the amount of additional spectrum that can be cleared for Public Safety in these regions may be either restricted or nonexistent.

7. The reason that clearing additional spectrum for Public Safety in the border areas is so critical is that Public Safety is already severely spectrally impoverished in these areas. This spectrum shortage is further compounded by the current Canadian Digital Television (DTV) Transition plan; a plan that completely blocks Public Safety agencies in New York (and elsewhere) from utilizing the new 700 MHz Public Safety allocations within the Canadian border areas.

**(A) Canadian Regions 2 and 7**

8. The "Consensus Plan" has introduced several band configurations that will "fit together" with the final plan for the non-border areas. This is a plausible proposal, since the band currently operates with dissimilar spectrum allocations in different areas of the US. However, the Consensus Plan proposes[9] that channel allocation distribution in Canadian Region 7[10] (66° W to 121° 30' W, 100 - 140 km from border) will be absorbed into the non-border areas for purposes of the band reorganization, making the claim that *"...Region 7 is no longer warranted*".

9. We first must note that in Region 7, the breakdown of current 800 MHz spectrum allocations (outside of NPSPAC) is as follows; Public Safety (28%), B-I/LT (40%), and General Category and SMR (32%). Current non-border allocations are currently at; Public Safety (11%), B-I/LT (17%), and General Category and SMR (72%). In terms of

[9] Consensus Plan § G-3b.

[10] CFR 47 Part 90 §90.619

channels, eliminating the Region 7 channel allocation distribution would require that 170 Public Safety, 240 B-I/LT, and a variable number of high-site SMRs allocations be accommodated within a block that will have space - including the 2 MHz guard band for only 280 total channel allocations (outside NPSPAC[11]). This implies to us that some licensees may either not be made whole, or will be forced to migrate into the Guard Band with its proposed higher noise levels in order to continue their current operations, which may require changes in their system implementation to overcome the potential increased noise – another cost that should be attributable to this migration plan.

10. With regard to this concern, the Consensus plan notes that:

*"While this proposed modification of the Region 7 allocation may appear at first glance to reduce the amount of spectrum currently designated for public safety licensees, that is not the case. Although allocated for public safety use, the NPSPAC spectrum allocation in Region 7 is not currently being utilized."*[12]

11. This claim that the NPSPAC allocation in Region 7 is not currently being *utilized* is not entirely correct. In New York State, all NPSPAC spectrum is either (1) licensed or (2), has been in the Regional Planning process -- preparatory to licensing, for some time. Furthermore, this spectrum will be utilized to the maximum degree possible, as a resource for the SWN. In our original filing, we clearly illustrated[13] NPSPAC spectrum availability in New York's border areas, as well as how such SWN spectrum resources were identified and coordinated.

---

[11] Consensus Plan, §V. *"regardless of current usage, the entire NPSPAC allocation in each border region should be relocated as it is already allocated, whether by contiguous block or interleaved with another country's spectrum allocation."*

[12] Consensus Plan Appendix §G-3c.

12. An examination of Public Safety, non-Nextel SMR and B-I/LT licenses within 806-821 MHz in the Canadian Border regions of New York State identified that Public Safety usage is quite high (ANNEX-1, Figure A-1), and B-I/LT and non-Nextel SMR usage is low (ANNEX-1, Figure A-2). There also appears to be a strong possibility that some guard band operations may be mandatory, where blocked[37] channel requirements exceed 200 channels (ANNEX-1, Figure A-3 and Figure A-4).

13. We still believe the Consensus Plan for the border area cannot accommodate all Public Safety and B/ILT licensees successfully within New York State. We note that, in general, Public Safety allocations in Region 7 will be reduced if its channel allocations were to be redistributed as a non-border region. Furthermore we strongly maintain the State of New York must remain whole throughout any band reorganization, and cannot suffer any net loss of 800 MHz spectrum as a result of this proceeding. Finally, the Commission should also note that even if New York is made whole with regard to current and planned spectrum holdings, other States may see that elimination of the present distribution of channel allocations in Region 7 may serve to reduce the overall 800 MHz spectrum allocations for both Public Safety and B-I/LT services. Because of this, the fate of the current channel allocations in Region 7 should be decided only after either the parties of the "Consensus Plan" provide additional analyses, or the Commission's own engineers determine that no adverse effects will result from such action.

**(B) International Mutual Aid Channels**

14. With the threat of war and the shadow of international terrorism looming, it is imperative to continue to keep a firm set of channel resources clear for Public Safety and first

[13] WT Docket 02-55, Comments of Statewide Wireless Network, New York State Office for Technology, Appendix I

responders. In the event of crisis, these channel resources serve to allow for instant interoperability between different agencies, and even different countries. For 800 MHz interoperability, the NPSPAC Mutual Aid channels have long served as resources to facilitate interoperability. As such, they have been allocated across the Canadian and Mexican borders so that seamless coordination and cross-border communication are possible.

15. Because the NPSPAC band will be relocating to channel centers 15 MHz lower in frequency, these Mutual Aid channels will also need to be relocated. The option of leaving these allocations intact is not viable - since they would be subject to massive low-site ESMR and cellular interference. There are obvious difficulties with relocating these channels, especially in terms of modifying international agreements, since this implies that both Canada and Mexico will need to change their spectrum allocations accordingly. These difficulties have been noted within the "Consensus Plan"[14], and they appear minor with regards to Canada, with more effort required to resolve with regard to current channel allocations in Mexico.
16. The State of New York will not presume knowledge of the total time required for completion of all the international negotiations that are required to resolve these border region matters - thus we look to the Commission for guidance on this. However, no matter what these timelines may be, there must be clearly defined international mutual aid channels set aside at each step of the 800 MHz re-banding, with continual, uniform, and unfettered access to these channels across both the US and its neighbors. For this reason, the Commission should undertake whatever immediate action is necessary to

[14] Consensus Plan, § Appendix G-4, 3

circumvent any international spectrum allocation inconsistencies that may hinder 800 MHz mutual aid operations on a common set of channels.

# III. LOGISTICS AND COSTS

17. The proposed "Consensus Plan" contains a very detailed outline of how the re-partitioning of the 800 MHz band will be accomplished. Under the current proposal, different areas of the state would be re-partitioned at different points in time - creating a difficult if not impossible environment to support seamless statewide communications interoperability. Therefore, we ask that all Regions within the State be treated as one Region, and dealt with simultaneously. The State further maintains that, however the process is implemented, it must not delay the construction of SWN, and it must not place additional burdens upon the taxpayers of the State.

## (A) Regional Schedule of Re-Banding Process

18. In both the Phase I and Phase II portions of the proposed "Consensus Plan", the licensees are scheduled to be relocated one Region at a time, prioritized by both population and the current degree of interference issues that exist[15]. A sample relocation ordering was offered within the Consensus Proposal as Appendix E, in order to provide an example of how such a prioritization could be achieved.

[15] "Consensus Plan", Appendix C-E

19. New York is very concerned that under this type of prioritization scheme, the three Regions[16] within New York would be dealt with at three different phases of implementation of the consensus plan. Since SWN is a statewide network, it would be very difficult, if not impossible, to manage the frequency relocations on differing schedules, while maintaining seamless multi-agency interoperability throughout the State. For this reason, we maintain that States who contain multiple NPSPAC Regions must have the option of requiring that all Regions within their State be relocated simultaneously. As an example, New York's three Regions would need to be simultaneously relocated according to the schedule of its highest priority region.

**(B) SWN Timeline and Transition Costs**

20. It is evident that any reconfiguration and de-interlacing of the 800 MHz band will coincide with some portion of SWN construction. The State again stresses that under no circumstances should the FCC take action that would delay the implementation of the SWN, as it will be a critical component within this State (and Nation's) homeland defense efforts. Furthermore, although the consensus plan proposal appears to provide a sound basis for its cost estimates, it should be noted that the costs of any mandated public safety spectrum transitions must not present a further burden on the taxpayers.

## IV. INTERFERENCE MITIGATION AND PROTECTION

21. The State of New York appreciates that the parties to the Consensus Plan have expended a great deal of effort in order to develop a comprehensive set of guidelines for mitigating

[16] There are three NPSPAC planning regions within New York State, Region 30 (New York-Albany), Region 55 (New York-Buffalo), and Region 8 (Metro NY).

interference conflicts within 800 MHz. The parties to the Consensus Plan have generated an effective and structured framework to resolve interference complaints, with clear roles, responsibilities, and lines of communications. While the State feels that a solid foundation has been laid, we also feel that the interference mitigation procedures presented within the "Consensus Plan" are incomplete, and too ambiguous. Specific procedures that we believe need to be addressed are the definition of interference, the minimum signal level requirement, out of band emission levels, intermodulation effects, and guard band protection levels. We are concerned by the underlying theme that all 800 MHz operations should migrate toward interference-limited designs. Public Safety must be allowed to continue to design fiscally responsible[17] and environmentally friendly[18] noise-limited systems.

**(A) Definition of Interference**

22. Section 1.2 of Appendix F introduces the definition of interference as being *"a reduction in the ratio of the desired signal to undesired signals and noise below a minimum recommended value."* (C, I and N respectively) Later in this Appendix, the recommended C/(I+N) for voice is set at 20-dB[19], and a manufacturer-supplied limit[20] is applied to data operations. While these values certainly seem to imply a high quality of service, they may be misleading. In fact, this definition seems to be applied such that in order to reach the required C/(I+N) value, the desired signal (C) must be raised, as

[17] i.e. utilizing sensitive high spec receivers to minimize siting requirements.

[18] Increasing signal levels to overcome interference will require increased transmitting tower site density – not considered environmentally friendly.

[19] "Consensus Plan" § Appendix F 2.1.1

[20] *I.d.* § Appendix F 2.1.2

opposed to the interference (I) reduced. This is implicit in Sections 2.1.1 a-c, and explicit in Section 2.1.1 d, which states: *"If the public safety communications system or other non-cellular block licensee being evaluated was designed with a C/I+N requirement greater than 20 dB, the applicable interference threshold specified above will be adjusted on a dB for dB basis as required to meet the C/I+N requirement of the system (e.g. a system requiring a C/I+N of 35 dB would be required to deliver 15 dB more signal in the apparent interference area than a system requiring a 20 dB C/I+N)."* Therefore, for technologies that provide more than adequate reliability at C/(I+N) levels of 17-dB[21], all that this 20-dB C/(I+N) serves to do is increase the desired signal strength that is required in order to obtain protection from interference - requiring more sites for the high-site services. An analogy would be: complaining to a neighbor that they are playing their music so load that you cannot hear yours, and getting the reply back that "if my music is too loud, then turn yours up until you can hear it". In the end everyone's hearing suffers.

23. Given this, if there is definitive C/(I+N) value that defines interference, it should be lower[22] than 20-dB, and should include a hard (I+N) limit. When a hard (I+N) limit is set, then raising the desired signal (C) will result in a predictable increase in voice quality (or data throughput) and/or communications reliability. This hard limit should also be set such that the interference level (I) will not significantly increase the overall noise-plus-interference (I+N) level within the victim's receiver.

---

[21] §Annex-A, Table A-1, C4FM (IMBE, 12.5 kHz),. Delivered Audio Quality (DAQ) of 3.0 at Faded Channel Performance Criterion (CPC) of 16.5 dB. Telecommunications Industry Association, Technical Service Bulletin TSB-088, WIRELESS COMMUNICATIONS SYSTEMS PERFORMANCE IN NOISE - AND INTERFERENCE - LIMITED SITUATIONS RECOMMENDED METHODS FOR TECHNOLOGY- INDEPENDENT MODELING, SIMULATION, AND VERIFICATION.

[22] Again, many systems may obtain adequate voice quality at <17-dB C/(I+N) levels. See (21)

24. Furthermore, the specification of C/(I+N) for data systems[23] is highly subjective, since successful data transfer is a function of a throughput requirement. This throughput ultimately drives the C/(I+N) that is necessary to meet the requirement. We suggest that this C/(I+N) be set at the level at which forward error correction (FEC) breakdown occurs[24] for the particular modulation under examination. For example, if a given technology employs a FEC that can operate[25] with corrected BER levels of greater than 0.5[26] at any C/(I+N) higher than 16-dB, then the C/(I+N) specification should be 16-dB.

**(B) Minimum Signal Level**

25. In Appendix F of the "Consensus Plan" proposal, protection from interference is extended, provided[27] that the alleged victim maintains a desired signal strength level of -95 to -98 dBm (for new/replacement and legacy systems respectively) in the area of complaint. The State has several concerns regarding this criterion.

26. First, the levels themselves imply that Public Safety will need to introduce at least an additional 3-dB reliability margin in their system designs as newer systems are designed and constructed. As noted in our comments[28] on ET Docket 02-135, this implies a tremendous increase in the costs and environmental impacts of Public Safety radio systems.

---

[23] "Consensus Plan", § Appendix F, Section 1.2.2

[24] The point where the corrected BER rate is reduced to 0.5

[25] With confirmed data delivery possible through techniques such as Automatic Repeat Requests (ARQs)

[26] When FEC breakdown occurs, the BER will abruptly shift from some nominal value (ex BER < $0.2 \times 10^{-2}$), to the level at which no information transfer is possible (BER= 0.5).

[27] "Consensus Plan" § Appendix F-2, 2.1.1 a-b

27. Second, since SWN is a massive system whose construction will span a number of years, the interference criteria needs to be consistent during the entire construction period in order for the final system to meet its initial design goals. Therefore, either replacement or previously designed systems must fall into the "legacy" category when evaluating possible interference.

28. Third, while -95 to -98 dBm is very close to the values specified for regulatory contours, past systems have not been mandated to design to these levels. A commercial high site SMR or fiscally challenged Public Safety system may get adequate coverage with a rural system designed to levels above -98 dBm. However, a 3-dB increase[29] in interference levels from a new interference source could bring the system's reliability from 95% (noise only) to less than 80% in the vicinity of the interferer.

29. Finally, the State strongly objects to setting any minimum desired signal level without defining the corresponding measurement process. A median desired signal level that is greater than -98 dBm within the affected area might be reasonable. However, if this level is measured at the 95$^{th}$ percentile within the affected area, then the median design level anywhere within the service area may need to be more than 12-dB higher. As shown in (28), this would effectively require a three-fold to five-fold increase in the number of required public safety transmitter locations, with corresponding fiscal and environmental impacts. Since the proposed "Consensus Plan" states that "*For either "existing" systems and "new or replacement systems," the interference protection established here will be*

---

[28] § Appendix A, Comments of Statewide Wireless Network, New York State Office for Technology, January 7, 2003, FCC ET Docket No. 02-135

[29] A single interferer at -125 dBm, or 3-dB above a standard NPSPAC co-channel interferer

*based on an area coverage probability of 95%."*[30], the implication seems to be that these measurements are at the 95th percentile - which is completely unacceptable. Without a solid measurement technique specified, these thresholds are completely ambiguous. We therefore ask that the Commission take no action on these thresholds until the parties to the Consensus Plan clarify this issue.

**(C) Out of Band Emissions**

30. The Consensus Plan will allow for better transmitter filtering that will result in reduced Out of Band Emission (OOBE) levels. The State feels strongly that licensees of the Radio Frequency (RF) spectrum need to confine their emissions to within their assigned channels, to the maximum extent possible. Spilling power outside of their allocations is the RF equivalent to pollution. This has been difficult for low site SMRs to do, with the 800 MHz band service categories interlaced as they are currently, and has resulted in a rise in the noise floor, adversely impacting Public Safety receivers. However, the separation proposed by the "Consensus Plan" should facilitate economical and effective filtering, that can lower OOBE into adjacent allocations.

**(D) Intermodulation**

31. The State is concerned that although interference from OOBE might be minimized under this consensus proposal, it is not clear that the Intermodulation (IM) issues are adequately resolved. We look forward to comment from the radio manufacturers as to whether this band partitioning can be exploited to allow for practical Public Safety receiver designs,

[30] "Consensus Plan" § Appendix F-2, 2.2.2 c

which will minimize IM in receivers from the very high level signals[31] that will continue to be present from 861-869 MHz base transmissions. It is important also to be able to maintain the sensitivity that is currently available on high quality equipment. We are concerned as to whether dual band 700/800 MHz Public Safety base receivers (and tower-top pre-amplifiers) will be able to operate over a 20 MHz bandwidth with low losses, and still maintain the ability to effectively filter out interfering signals as close as 2 MHz away.

**(E) Guard Band Protection**

32. Under the "Consensus" proposal, the minimum desired signal levels necessary to claim interference protection rises considerably for operations within the 814-816/859-861 MHz "Guard Bands"[32]. This increase in desired signal power starts at 0-dB at the lower edge, rises to 6-dB after 500 kHz, then rises steeply to 33-dB after 1.5 MHz where it remains. This is presented in Figure IV-1, along with the corresponding minimum power requirements.

[31] >-25 dBm aggregate levels

[32] "Consensus Plan" Appendix F §2.1.2

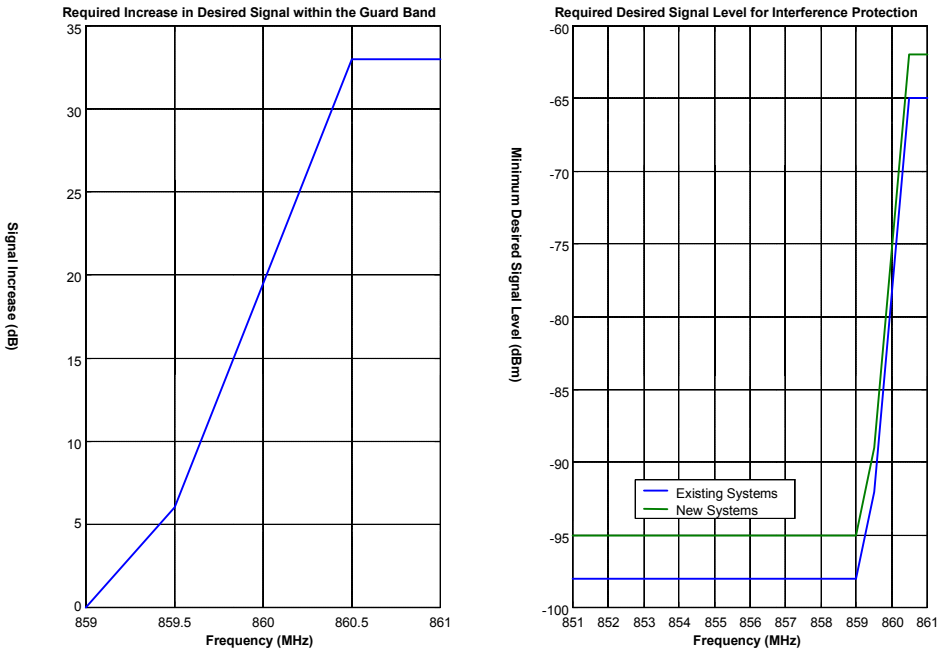



**Figure IV-1: Guard Band Desired Signal Requirements - "Consensus Plan"**

33. In concept, the State does not object to the increase in desired signal levels within the guard band. However, we are concerned that in practice there may be cases where licensees or near-term applicants[33] are forced[34] to accept guard band channel assignments (or any assignment greater than 814/859 MHz). In these instances, the FCC must ensure that such licensees or near-term applicants are exempt from the requirement to provide increased signal levels in order to claim protection from interference.

[33] For example, a NPSPAC applicant in the Canadian border Region that is currently in the Regional Planning process, preparatory to license application. (Some NPSPAC Planning Regions have encountered excessive delays in the Regional Plan amendment approval process.)

[34] For example, non-campus-based systems may be required to operate on Guard Band channels in certain areas as shown in II-(A)

**(F) Overall Push Toward Interference Limited Systems**

34. In closing these comments on interference mitigation, we must express concern that many of the concepts introduced by the proposed "Consensus Plan" have the implication that all 800 MHz services will need to migrate toward interference limited designs. This theme is prevalent throughout Appendix F of the "Consensus Plan" as previously noted, and touched upon directly in Section 4.1.3 of that Appendix:

*"The Consensus Parties recommend that the Commission amend its rules to require that (a) new RF communications hardware systems and system designs using licensed spectrum in the 851-861 MHz range must account for the existence of wireless communications systems in adjacent allocations that may use interference-limited network architectures with relatively strong composite on-street signal strengths expected for such deployments, and that systems to be operated in the 851-861 MHz range shall be designed to operate successfully in the presence of such deployments. The Consensus Parties further recommend that the Commission, as part of this regulation activity, and in conjunction with the receiver quality changes in 4.1.1c, solicit comment from equipment manufacturers, system designers, and system operators on methods, transition schedules, and necessary rule changes (e.g., modifying the 40 dBu contour limit) to achieve this regulatory requirement, bearing in mind that the changes made must be the minimum necessary to achieve the regulatory goal, without forcing existing operators in the 851-861 MHz allocation to implement interference-limited designs themselves"*

35. Although the closing sentence of this quotation clearly states that the intent is not to force existing operators to implement interference limited systems, we caution the Commission

that most of the techniques to mitigate interference[35] will require higher desired signal levels, which in effect forces a movement toward interference-limited designs. Furthermore, requiring an additional 3-dB of desired signal power for new systems to claim interference protection is a clear move in the direction of requiring increasingly interference limited designs. The Commission must proceed carefully in matters such as this, which have severe environmental and financial impacts[36] with regard to Public Safety and other Services that often utilize noise limited system designs.

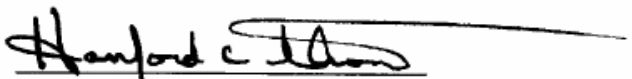
[35] Note that receiver filtering with steeper skirt selectivity introduces additional losses, which reduces sensitivity, and increases the necessary received desired signal level required for a given channel performance criterion.

[36] see footnote 28, *supra.*

# V CONCLUSION

36. As indicated in these comments, the "Consensus Plan" as submitted on December 24, 2002, in our view has certain unresolved issues, as well as incomplete and ambiguous mitigation procedures. The State has recommended actions that it believes will correct these conditions, and believes that these actions are critical in order to successfully improve Public Safety Communications in the 800 MHz band. We thank the Commission for the opportunity to present these views and recommendations, and look forward to their inclusion in the final action to be taken by the Commission on this matter.

Respectfully Submitted,



Hanford C. Thomas, Director February 10, 2003

Statewide Wireless Network
New York State Office for Technology
State Capitol, ESP
P.O. Box 2062
Albany, New York 12220-0062
(518) 443-2041

# ANNEX-1

This Annex presents the utilization of 806-821/851-866 MHz spectrum as licensed within New York State. The color values (see color bar axis) presented represent the minimum number of individual channels that are blocked[37] at any particular location within the state, and do not include Nextel spectrum holdings. Therefore these coincide with the minimum amount of channels that will need to be available to host or relocate Public Safety, Business/Industrial Land Transportation, and non-Nextel SMR licensees throughout the state. Note that these only reflect licensed transmitters within New York State; therefore the levels will be higher[38] for areas of the state that border other states.

[37] Each channel is "blocked" for 55 miles, the minimum short spacing separation (without a waiver or letter of concurrence).

[38] This is especially significant in Southwestern New York State and the Greater New York City Metropolitan Area.

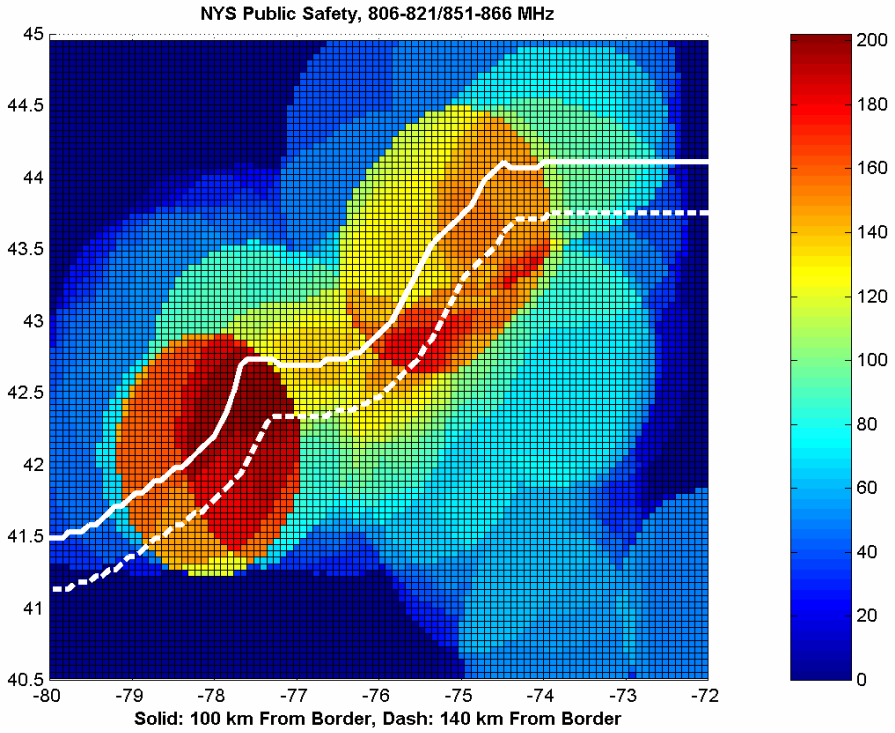



**Figure A-1: Public Safety Spectrum Utilization, 806-821/851-866 MHz**

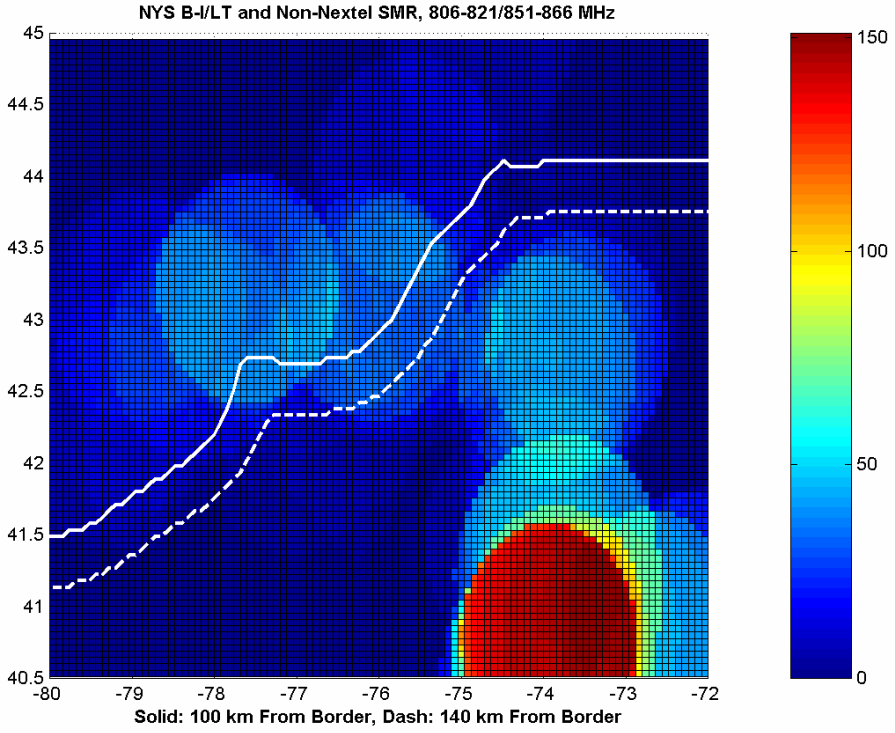



**Figure A-2: B-I/LT Spectrum Utilization, 806-821/851-866 MHz**

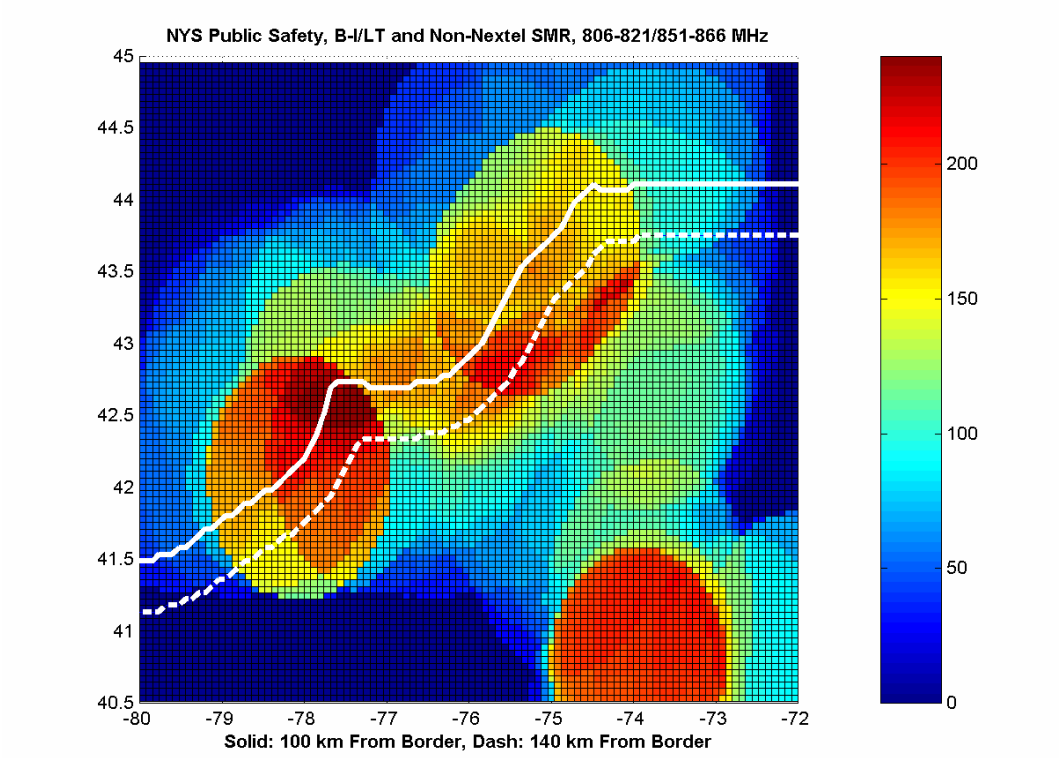



**Figure A-3: Public Safety and B-I/LT Spectrum Utilization, 806-821/851-866 MHz**

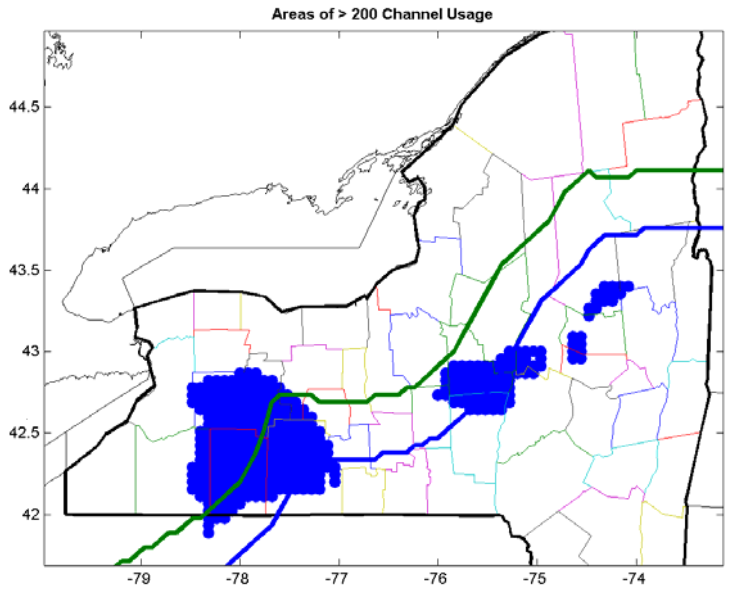



**Figure A-4: Public Safety and B-I/LT Utilization - Greater than 200 Channels Blocked (806-821/851-866 MHz)**